



# GarrettCom<sup>®</sup>

*Industrial Networking at Its Best™*

## **Magnum IPS42 Internal Power Supply for Edge Switch Family**



## **Installation and User Guide**

# **Magnum™ IPS42 Internal Power Supply for Edge Switch Family Installation and User Guide**

Part #: 84-00181Z Rev. B

## **Trademarks**

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Ethernet is a trademark of Xerox Corporation

NEBS is a trademark of Telcordia Technologies

UL is a registered trademark of Underwriters Laboratories

**Important:** The Magnum IPS42 Series Internal Power Supply for Edge Switches contains no user serviceable parts. Attempted service by unauthorized personnel shall render all warranties null and void. If problems are experienced with Magnum IPS42 Internal Power Supply products, consult Section 4, Troubleshooting, of this User Guide.

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**Federal Communications Commission****Radio Frequency Interference Statement**

*This equipment generates, uses and can radiate frequency energy and if not installed and used properly, that is in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.*

**Electrical Safety requirements:**

1. This product is to be installed Only in Restricted Access Areas (Dedicated Equipment Rooms, Electrical Closets, or the like).
2. 48VDC products shall be installed with a readily accessible disconnect device in the building installation supply circuit to the product.
3. This product shall be provided with a maximum 10A DC Listed fuse or circuit breaker in the supply circuit when connected to a 48V centralized source.
4. The external power supply for DC units shall be Listed, Direct Plug In power unit, marked Class 2, or listed ITE Power Supply, marked LPS, which has suitably rated output voltage (i.e. 24VDC or 48VDC) and suitable rated output current.
5. Product does not contain user replaceable fuses. Any internal fuses can ONLY be replaced by GarrettCom personnel through the RMA process.

Contacting GarrettCom, Inc

Please use the mailing address, phone, fax numbers and email address listed below:

GarrettCom, Inc.  
*47823 Westinghouse Dr.*  
*Fremont, CA 94539*  
**Phone (510) 438-9071**  
*Fax (510) 438-9072*

Website: <http://www.GarrettCom.com>

**Email: [support@garrettcom.com](mailto:support@garrettcom.com)**

**TABLE OF CONTENTS****Page**

<b>1.0</b>	<b><u>SPECIFICATIONS</u></b> .....	<b>1</b>
1.1	Technical Specifications .....	1
1.2	Summary of models and descriptions for IPS42 Series: .....	5
<b>2.0</b>	<b><u>INTRODUCTION</u></b> .....	<b>8</b>
2.1	Inspecting the Package and the Product.....	8
2.2	Product Description .....	9
2.3	Features and Benefits .....	10
<b>3.0</b>	<b><u>INSTALLATION</u></b> .....	<b>11</b>
3.1	Locating the IPS42.....	11
3.1.1	Mounting Dimensions for IPS42 with metal brackets .....	12
3.1.2	DIN-Rail mounting option .....	15
3.2	Power Cord Installation .....	16
3.3	Hardware operated Alarm Contact .....	20
<b>4.0</b>	<b><u>TROUBLESHOOTING</u></b> .....	<b>21</b>
4.1	Before Calling for Assistance .....	22

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4.2	When Calling for Assistance .....	24
4.3	Return Material Authorization (RMA) Procedure .....	25
4.4	Shipping and Packaging Information.....	26
<b><u>APPENDIX A: WARRANTY INFORMATION</u></b> .....		<b>28</b>

### **Revisions**

**Rev. B 11/09:** Updated DIN Rail mount photo (Sec. 3.1.2)

**Rev. A 07/09:** Initial Release



## 1.0 SPECIFICATIONS

### 1.1 Technical Specifications

#### **AC/DC Power Supply (Model IPS42-AC/DC):**

Power Input: DC: 100-250 VDC

AC: 100-250 VAC, 47 to 63 Hz, auto ranging

Surge Rating: IEC 61000-4-3, Class 3/4 (4KV for DC)

Std. Recessed Terminal Block: “-, GND, +”, UL Listed

Power Consumption: 10 Watts typical for a 4+2 port fiber model

#### **DC Power Supplies for Dual Source DC:**

125VDC: Input 100 to 250VDC nominal

48VDC: Input 44 to 57VDC

24VDC: Input 20 to 36VDC

Surge Rating: IEC 61000-4-3, Class 3/4 (4KV for DC)

Std. Terminal Block for DualSRC: A: “-, GND, +”, B: “-, GND, +”

Power Consumption: 10 Watts typical for a 4+2 port fiber model

**AC Power Supply (Model IPS42-AC)**

AC Power Connector: standard IEC 320 male, recessed

Power Input: 100-250 VAC, 47 to 63 Hz, auto ranging

Power Consumption: 10 Watts typical for a 4+2 port fiber model

**Mechanical Specifications:**

Enclosure: Rugged sheet metal (Aluminum).

Dimensions of the IPS42 unit:

6.0 in H x 5.5 in W x 1.7 in D (15.2 cm x 14.0 cm x 4.3 cm)

Weight: all models: 1.5 lbs. (0.68 kg)

**Operating Environment:**

IEC 60068 “Type Test” exceeds -40° to 185°F (-40° to 85°C)

Storage: -60° to 212°F (-50° to 100°C)

Relative Humidity: 5% to 95% (non-condensing)

Altitude: -200 to 13000FT (-60 to 4000M)

UL 60950 “Component Parts” rating: -40° to 140°F (-40° to 60°C)

Conformal coating (humidity protection): optional

**Cooling Method:**

All IPS42 models feature convection cooling for temperature un-controlled locations. All models have closed cases to withstand dirt and use special thermal techniques to transfer heat to the outside of the case for cooling.

**ALARM RELAY Terminal Block, four screw terminals:**

Internal 60VA relay contact: Open for power Off, closed for power On (Hardware).

**Mounting options**

Metal mounting clips for panel mounting: included

DIN-Rail mounting option: Model # DIN-RAIL-MC2 (see Section 3.1)

**Mean Time Between Failure (MTBF)** – over 15 years, Telcordia (Bellcore) Method

**Agency Approvals and Standards Compliance:**

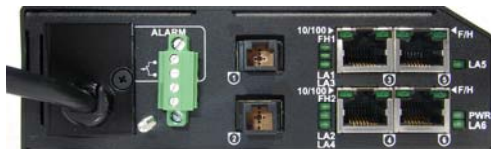
UL Listed (UL 60950), cUL, CE, Emissions meets FCC Part 15 Class A  
IEC 61850 EMC and Operating Conditions Class C Power Substations  
IEEE 1613 Env. Standard for Electrical Power Substations  
NEBS L3 and ETSI compliant including vibration, shock and altitude  
NEMA TS-2 and TEES for traffic control equipment

**Warranty:** Three years, return to factory

Made in USA

## 1.2 Summary of models and descriptions for IPS42 Series:

**IPS42-AC/DC:** Internal Power Supply chassis for use with any ES42H or ES42P Series Edge Switch. Requires simultaneous ordering of an ES42 (without external power supply) as a separate line item. Rated 100 to 250 VAC or VDC. Power input via recessed terminal block, UL Listed and Surge protected.



**IPS42-AC/DC**

**IPS42-125VDC-DualSRC:** Internal Power Supply chassis for use with any ES42H or ES42P Series Edge Switch. Requires simultaneous ordering of an ES42 (without external power supply) as a separate line item. Rated 100 to 250 VDC, Dual Source. Power input via recessed terminal block, UL Listed and Surge protected.

**IPS42-48VDC-DualSRC:** Internal Power Supply chassis for use with any ES42H or ES42P Series Edge Switch. Requires simultaneous ordering of an ES42 (without external power supply) as a separate line item. Rated 44 to 57 VDC, Dual Source. Power input via recessed terminal block, UL Listed and Surge protected.

**IPS42-24VDC-DualSRC:** Internal Power Supply chassis for use with any ES42H or ES42P Series Edge Switch. Requires simultaneous ordering of an ES42 (without external power supply) as a separate line item. Rated 20 to 36 VDC, Dual Source. Power input via recessed terminal block, UL Listed and Surge protected.



**IPS42-xxVDC-DualSRC**

**IPS42-AC:** Internal Power Supply chassis for use with any ES42H or ES42P Series Edge Switch. Requires simultaneous ordering of an ES42 (without external power supply) as a separate line item. Standard worldwide AC power input via standard IEC320 recessed male connector, UL Listed and Surge protected.



**IPS42-AC**

### Accessories

**DIN-RAIL-MC2** = Metal DIN-Rail mounting bracket for one IPS42 Series product (see Section 3.1)

**Conformal Coating** (for high humidity and “tropical” applications) - request quote.

## 2.0 INTRODUCTION

### 2.1 Inspecting the Package and the Product

Examine the shipping container for obvious damage prior to installing this product; notify the carrier immediately of any damage that you believe occurred during shipment or delivery. Inspect the contents of this package for any signs of damage and ensure that the items listed below are included.

This package should contain:

- 1 Magnum IPS42 Series Internal Power Supply for Edge Switch
- 1 set Metal panel mounting clips and screws (4 each)
- 1 Power Cord Installation Kit (if applicable)
- 1 IPS42 User Guide (this manual)
- 1 ES42 User Guide



Remove the Magnum IPS42 Series Internal Power Supply from the shipping container. Be sure to keep the shipping container should you need to ship the unit at a later date. In the event there are items missing or damaged contact your supplier. If you need to return the unit, use the original shipping container. Refer to Section 4 Troubleshooting, for specific return procedures.

## 2.2 Product Description

The Magnum IPS42 chassis brings big-switch internal power supplies to compact unmanaged industrial edge switches. The AC/DC model allows the user to connect into 125VDC substation power or into worldwide AC power. Dual-source models operate from either of two DC power inputs and provide high availability. Any one of the models of the ES42s may be ordered concurrently with any of the five IPS42 models.

**Note:** See ES42 User Guide for specifications related to the ES42 Series of Edge Switch.

### 2.3 Features and Benefits

- **100 to 250V range, 4KV surge protected**

AC/DC models are rated at 100-250V with a maximum of 4KV surge suppression. The only High Voltage AC/DC Ethernet unit on the market that is UL Listed for user safety.

- **Dual-Source power input**

125VDC, 48VDC and 24VDC models are equipped with Dual-Source inputs for high availability.

- **For AC models**

Worldwide AC power input with standard IEC 320 recessed male power plug

- **Rugged metal case, Industrial grade**

IPS42 Series have a robust design and are packaged in a rugged sheet metal enclosure to ensure high reliability and durability even when placed in industrial or outdoor applications.

## **3.0     INSTALLATION**

This section describes the installation of the Magnum IPS42 Internal Power Supply, including location, mounting, power cord and media connections.

### **3.1    Locating the IPS42**

The compact and lightweight design of the Magnum IPS42 Series allows it to be easily installed in almost any location. A Velcro strip may be used for mounting the unit on a vertical surface such as a wall or cabinet, or for securing the unit on a table-top or shelf.

Alternatively, metal mounting clips and screws are included for a rugged and secure mounting in any orientation.

Installation of the Magnum IPS42 Series of products is a simple procedure. The installation location is dependent upon the physical layout of the Ethernet network and associated cabling. Make sure the unit is installed in a location that is easily accessible to an AC power outlet or the appropriate DC source and where cooling is not inhibited. The green Power (PWR) LED must turn ON when power is applied.

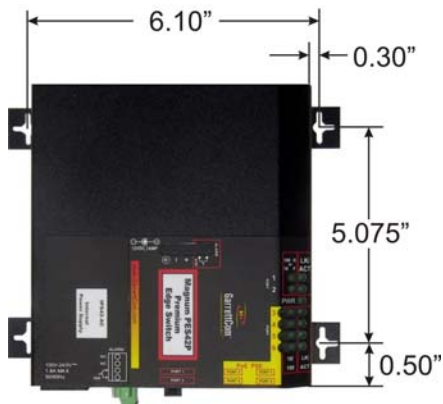
### **3.1.1 Mounting Dimensions for IPS42 with metal brackets**

Each Mangum IPS42-Series is supplied with metal mounting brackets and screws to mount the unit securely on a panel or wall. It is recommended to mount the units vertically (see page 14) for proper cooling and long-life reliability. It is also advisable to mount the unit with space for air movement around the top and the sides, typically a minimum of 1 inch.

**Note:** The metal brackets supplied hold the back of the IPS42 unit out from the panel or wall behind it, creating a rear space of about ¼ inch or 1cm. This allows air circulation and cooling of the rear part of the case.

For best cooling of the IPS42 Series, attach the metal brackets to metal (rather than wood or plastic). Attaching to metal helps conduct heat away from the IPS42 Series through the metal brackets and into the metal support structure.

Since the IPS42 Series has special internal thermal techniques (patent pending) to move the heat generated by the electronic components inside into the case, the case may be quite warm to the touch during normal operation.



The unit is mounted using the brackets as shown in the illustration above. The spacing for the mounting screws into the supporting wall or panel is a rectangle 15.49 x 12.89 cm (6.10 x 5.075 inches) center-to-center.

### 3.1.2 DIN-Rail mounting option

The Magnum IPS42 Power Supply, designed for use in “Factory Floor” Industrial Ethernet environments, is available for DIN-Rail mounting in an enclosure having DIN Rails.

#### **A Magnum IPS42 is shown with the DIN-RAIL-MC2 bracket installed**

The metal DIN-Rail mounting hardware is optional and needs to be ordered as a separate item, e.g. Model #DIN-RAIL-MC2. It comes with four screws to attach the bracket to the MC unit.



### 3.2 Power Cord Installation

For IPS42-DC w/Dual Source and AC/DC models that do not have the power cord installed at the factory, follow the procedures as described below. For detailed technical specifications, refer to Section 1.1 of this User Guide.

The IPS42 Internal Power Supply provides reliable operation, withstands higher temperature environments, and provides the power choices to the user to deploy in uncontrolled temperature environments.

The units are provided with a 4-position screw-lock terminal block for installing the power cord. (shown in fig. 3.2a)



Fig. 3.2a



Use the Power Cord installation kit (items for Dual Source shown in Fig. 3.2b) to connect the power cord to the unit.

Note: For Single Source models, the kit will include a single opening power cord cover and one protective bushing.

- a. Slide the power cord cover (pictured in Fig. 3.2b) over the cordage to be used.

Note: The 4-position terminal block accepts 28-16 AWG wire.

- b. Strip the wire ends of the power cord and place into the appropriate hole in the terminal block (see Fig. 3.2c). Tighten the locking screws to secure.

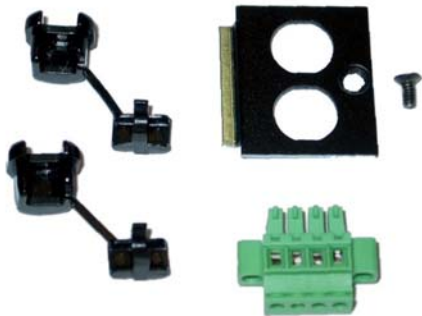


Fig. 3.2b

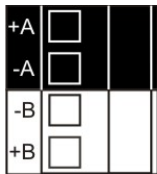


Fig. 3.2c

For Dual Source models, positions A and B will be used.

For Single Source models, only position A will be used.

**NOTE:** None of the conductor can be exposed after secured in the terminal block.

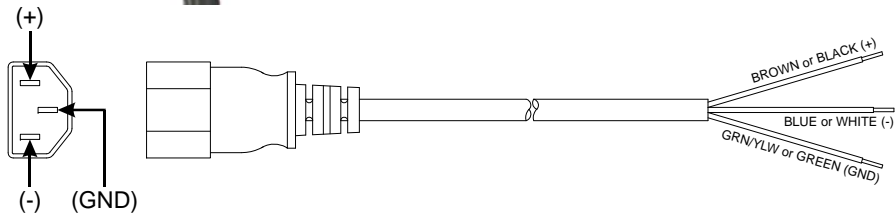
- c. Install the protective bushings and secure to the power cord cover.
- d. Secure the assembled terminal block to the mating piece of the unit.  
(see Fig. 3.2d)
- e. Secure the assembled power cord cover to the IPS42 case. (see Fig. 3.2e)
- f. Attach a Safety Ground to the Grounding post of the IPS42 case. (see Fig. 3.2a)



Fig. 3.2d



Fig. 3.2e



### 3.3 Hardware operated Alarm Contact

The two screw Alarm Contacts feature, standard on Magnum IPS42-Series, provides Normally Closed (NC) contacts to which the user can attach one set of status monitoring wires at the green terminal block.

The NC Alarm Contact is held close when there is power on the main board inside of the IPS42. This provides a “Hardware operated Alarm” because the NC contacts will open when internal power is lost, either from an external power down condition or by the failure of the power supply inside of the Magnum IPS42-Series Power Supply.



Fig. 4.4a

1. Four-position terminal block (positions 1 & 2) as shown in Figure 4.4a
2. The Alarm Relay contact connected to the two terminals (1, 2) is hardware operated.
3. By default it is NC (normally closed). It will open if there is any loss of power to the electronics inside of the unit.

#### **4.0 TROUBLESHOOTING**

All Magnum Ethernet products are designed to provide reliability and consistently high performance in all network environments. The installation of Magnum IPS42 Series Internal Power Supply is a straightforward procedure (see INSTALLATION, Section 3.0); the operation is also straightforward and is discussed in the included ES42 User Guide.

Should problems develop during installation or operation, this section is intended to help locate, identify and correct these types of problems. Please follow the suggestions listed below prior to contacting your supplier. However, if you are unsure of the procedures described in this section or if the Magnum IPS42 Series Internal Power Supply is not performing as expected, do not attempt to repair the unit; instead contact your supplier for assistance or contact GarrettCom Customer Support.

#### **4.1 Before Calling for Assistance**

1. If difficulty is encountered when installing or operating the unit, refer back to the Installation Section of the applicable chapter of this manual. Also check to make sure that the various components of the network are interoperable.
2. Check the cables and connectors to ensure that they have been properly connected and the cables/wires have not been crimped or in some way impaired during installation. (About 90% of network downtime can be attributed to wiring and connector problems.)
3. If the fiber port does not link up while connecting to other device, do a quick Loop test to test the fiber transceiver is functional or not. Use a short patch cable of fiber and connect one end of cable to transmit and other end of receive to the fiber port transceiver. If the Link Led turns solid green, then the fiber port is functional and working.

4. Make sure that an AC power cord is properly attached to each Magnum IPS42 Series unit. Be certain that the AC power cord is plugged into a functioning and appropriate electrical outlet. Use the PWR LEDs to verify each unit is receiving power.
5. If the problem is isolated to a network device other than the Magnum IPS42 Series product, it is recommended that the problem device is replaced with a known good device. Verify whether or not the problem is corrected. If not, go to Step 6 below. If the problem is corrected, the Magnum IPS42 Series product and its associated cables are functioning properly.
6. If the problem continues after completing Step 5 above, contact your supplier of the Magnum IPS42 Series unit or if unknown, contact GarrettCom, Inc. by fax, phone or email - (*support@garrettcom.com*) for assistance

**4.2 When Calling for Assistance**

Please be prepared to provide the following information.

1. A complete description of the problem, including the following points:
  - a. The nature and duration of the problem;
  - b. Situations/Environment when the problem occurs;
  - c. The components/devices involved in the problem;
  - d. Any particular application that, when used, appears to create the problem;
2. An accurate list of GarrettCom product model(s) involved, with serial number(s). Include the date(s) that you purchased the products from your supplier.
3. It is useful to include other network equipment models and related hardware, including convenient computers, workstations, terminals and printers; plus, the various network media types being used, along with diagram of network setup.
4. A record of changes that have been made to your network configuration prior to the occurrence of the problem. Any changes to system administration procedures should all be noted in this record.



### **4.3 Return Material Authorization (RMA) Procedure**

All returns for repair must be accompanied by a Return Material Authorization (RMA) number. To obtain an RMA number, please use this URL -

[https://rma.garrettcom.com/rma/rma\\_request\\_noaccount.php](https://rma.garrettcom.com/rma/rma_request_noaccount.php) to fill out the form.

Please have the following information readily available:

Name and phone number of your contact person.

Name of your company / institution

Your shipping address

Product name

Serial Number (or Invoice Number)

Packing List Number (or Sales Order Number)

Date of installation

Failure symptoms (including a full description of the problem)

GarrettCom will carefully test and evaluate all returned products, will repair products that are under warranty at no charge, and will return the warranty-repaired units to the sender with shipping charges prepaid (see Warranty Information, Appendix A, for complete details). However, if the problem or condition causing the return cannot be duplicated by GarrettCom, the unit will be returned as:

### **No Problem Found.**

GarrettCom reserves the right to charge for the testing of non-defective units under warranty. Testing and repair of product that is not under warranty will result in a customer (user) charge.

#### **4.4 Shipping and Packaging Information**

Should you need to ship the unit back to GarrettCom, please follow these instructions:

1. Package the unit carefully. It is recommended that you use the original container if available. Units should be wrapped in a "bubble-wrap" plastic sheet or bag for shipping protection. (You may retain all connectors and this Installation Guide)

**CAUTION: Do not pack the unit in Styrofoam "popcorn" type packing material.**

**This material may cause electro-static shock damage to the unit.**

2. Clearly mark the Return Material Authorization (RMA) number on the outside of the shipping container.
3. GarrettCom is not responsible for your return shipping charges.
4. Ship the package to:

**GarrettCom, Inc.**  
**47823 Westinghouse Dr.**  
**Fremont, CA 94539**  
Attn.: Customer Service

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**APPENDIX A: WARRANTY INFORMATION**

GarrettCom, Inc. warrants its products to be free from defects in materials and workmanship for a period of three (3) years from the date of shipment by GarrettCom. During this warranty period, GarrettCom will repair or, at its option, replace components in the products that prove to be defective at no charge other than shipping and handling, provided that the product is returned pre-paid to GarrettCom.

This warranty will not be effective if, in the opinion of GarrettCom, the product has been damaged by misuse, misapplication, or as a result of service or modification other than by GarrettCom. GarrettCom reserves the right to make a charge for handling and inspecting any product returned for warranty repair which turns out not to be faulty.